

AMENDMENTS TO THE CLAIMS

Replace the claims with the following rewritten listing:

1-3. (Cancelled)

4. (Previously Presented) A method for positioning a mobile station including a repeater comprising a cell identifier generator module in a downlink circuit structure of the repeater, wherein the cell identifier generator module comprises: a synchronization searching unit for searching for a base station pilot signal; a time delay unit for generating a fixed delay according to the searching result from the synchronization searching unit; and a cell identifier signal generating unit for generating a cell identifier signal; wherein is a delay between a frame start time of the base station pilot signal and a frame start time of the cell identifier signal is the fixed delay; the method comprising the steps of:

(1) issuing the cell identifier signal, the fixed delay, and a search window width from the repeater in response to a positioning request from the mobile station, wherein the cell identifier signal is searched in a time range defined by the search window width and the fixed delay;

(2) measuring a Time Difference Of Arrival (TDOA) between the cell identifier signal and the base station pilot signal and reporting the measured TDOA, by the mobile station;

(3) determining whether the value of TDOA equals to the fixed delay; if so, going to step (4); otherwise going to step (7);

(4) measuring a Time Of Arrival (TOA), TOA_m , from the mobile station to the base station through the repeater;

(5) determining a value of TOA_{trans} with the formula: $TOA_{trans} = TOA_m - TOA_c$, wherein the TOA_{trans} means TOA from the mobile station to the repeater, and the TOA_c means a calibrated TOA from the repeater to the base station;

(6) calculating the distance between the mobile station and the repeater through multiplying TOA_{trans} with light velocity; and

(7) determining the position of the mobile station.

5. (Previously Presented) The method for positioning a mobile station according to claim 4, wherein said cell identifier signal is a scrambling code of the base station, which is different from that of adjacent base stations.

6. (Previously Presented) The method for positioning a mobile station according to claim 4, wherein in the step (7), said mobile station is positioned via TDOA positioning method.

7. (Previously Presented) The method for positioning a mobile station according to claim 4, wherein in the step (7), said mobile station is positioned via TOA positioning method.